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U.S. DEPARTMENT OF COMMERCE PATENT AND TRADEMARK OFFICE

ATTORNEY'S DOCKET NUMBER

TRANSMITTAL LETTER TO THE UNITED STATES
DESIGNATED/ELECTED OFFICE (DO/EO/US)
CONCERNING A FILING UNDER 35 U.S.C. 371

BRU6144P0060US

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR

10/031941

INTERNATIONAL APPLICATION NO
PCT/EP00/06937

INTERNATIONAL FILING DATE
20 July 2000

PRIORITY DATE CLAIMED
22 July 1999

TITLE OF INVENTION

SWITCHING SYSTEM WITH A COMBINED SWITCHING AND BLOCKING DEVICE

APPLICANT(S) FOR DO/EO/US
Klaus Bruchmann

JAN 22 2002

Applicant herewith submits to the United States Designated/Elected Office (DO/EO/US) the following items and other information:

1. ☒ This is a **FIRST** submission of items concerning a filing under 35 U.S.C. 371.
2. ☐ This is a **SECOND** or **SUBSEQUENT** submission of items concerning a filing under 35 U.S.C. 371.
3. ☒ This is an express request to begin national examination procedures (35 U.S.C. 371(f)). The submission must include items (5), (6), (9) and (24) indicated below.
4. ☒ The US has been elected by the expiration of 19 months from the priority date (Article 31).
5. ☒ A copy of the International Application as filed (35 U.S.C. 371 (c) (2))
 - a. ☐ is attached hereto (required only if not communicated by the International Bureau).
 - b. ☒ has been communicated by the International Bureau.
 - c. ☐ is not required, as the application was filed in the United States Receiving Office (RO/US).
6. ☐ An English language translation of the International Application as filed (35 U.S.C. 371(c)(2)).
 - a. ☐ is attached hereto.
 - b. ☐ has been previously submitted under 35 U.S.C. 154(d)(4).
7. ☒ Amendments to the claims of the International Application under PCT Article 19 (35 U.S.C. 371 (c)(3))
 - a. ☐ are attached hereto (required only if not communicated by the International Bureau).
 - b. ☐ have been communicated by the International Bureau.
 - c. ☐ have not been made; however, the time limit for making such amendments has NOT expired.
 - d. ☒ have not been made and will not be made.
8. ☐ An English language translation of the amendments to the claims under PCT Article 19 (35 U.S.C. 371(c)(3)).
9. ☒ An oath or declaration of the inventor(s) (35 U.S.C. 371 (c)(4)). - **unexecuted**
10. ☐ An English language translation of the annexes to the International Preliminary Examination Report under PCT Article 36 (35 U.S.C. 371 (c)(5)).
11. ☒ A copy of the International Preliminary Examination Report (PCT/IPEA/409). (in German)
12. ☒ A copy of the International Search Report (PCT/ISA/210). (in English and German)

Items 13 to 20 below concern document(s) or information included:

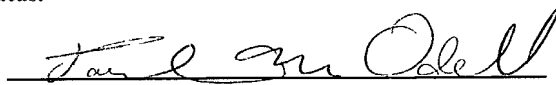
13. ☐ An Information Disclosure Statement under 37 CFR 1.97 and 1.98.
14. ☐ An assignment document for recording. A separate cover sheet in compliance with 37 CFR 3.28 and 3.31 is included.
15. ☐ A **FIRST** preliminary amendment.
16. ☐ A **SECOND** or **SUBSEQUENT** preliminary amendment.
17. ☐ A substitute specification.
18. ☐ A change of power of attorney and/or address letter.
19. ☐ A computer-readable form of the sequence listing in accordance with PCT Rule 13ter.2 and 35 U.S.C. 1.821 - 1.825.
20. ☐ A second copy of the published international application under 35 U.S.C. 154(d)(4).
21. ☐ A second copy of the English language translation of the international application under 35 U.S.C. 154(d)(4).
22. ☒ Certificate of Mailing by Express Mail
23. ☒ Other items or information:

(a) WO 01/08179 (PCT/EP00/06937)

(b) Return Postcard

U.S. APPLICATION NO. (IF KNOWN, SEE 37 CFR 1.53) 10/031941		INTERNATIONAL APPLICATION NO. PCT/EP00/06937		ATTORNEY'S DOCKET NUMBER BRU6144P0060US	
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24. The following fees are submitted: BASIC NATIONAL FEE (37 CFR 1.492 (a) (1) - (5)) :				CALCULATIONS PTO USE ONLY	
<input type="checkbox"/> Neither international preliminary examination fee (37 CFR 1.482) nor international search fee (37 CFR 1.445(a)(2)) paid to USPTO and International Search Report not prepared by the EPO or JPO				\$1040.00	
<input checked="" type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but International Search Report prepared by the EPO or JPO				\$890.00	
<input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) not paid to USPTO but international search fee (37 CFR 1.445(a)(2)) paid to USPTO				\$740.00	
<input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO but all claims did not satisfy provisions of PCT Article 33(1)-(4)				\$710.00	
<input type="checkbox"/> International preliminary examination fee (37 CFR 1.482) paid to USPTO and all claims satisfied provisions of PCT Article 33(1)-(4)				\$100.00	
ENTER APPROPRIATE BASIC FEE AMOUNT =				\$890.00	
Surcharge of \$130.00 for furnishing the oath or declaration later than _____ months from the earliest claimed priority date (37 CFR 1.492 (e)). <input type="checkbox"/> 20 <input type="checkbox"/> 30				\$0.00	
CLAIMS	NUMBER FILED	NUMBER EXTRA	RATE		
Total claims	8 - 20 =	0	x \$18.00		\$0.00
Independent claims	1 - 3 =	0	x \$84.00		\$0.00
Multiple Dependent Claims (check if applicable).				<input type="checkbox"/>	\$0.00
TOTAL OF ABOVE CALCULATIONS =					\$890.00
<input checked="" type="checkbox"/> Applicant claims small entity status. See 37 CFR 1.27). The fees indicated above are reduced by 1/2.					\$445.00
SUBTOTAL =					\$445.00
Processing fee of \$130.00 for furnishing the English translation later than _____ months from the earliest claimed priority date (37 CFR 1.492 (f)). <input type="checkbox"/> 20 <input type="checkbox"/> 30				\$0.00	
TOTAL NATIONAL FEE =					\$445.00
Fee for recording the enclosed assignment (37 CFR 1.21(h)). The assignment must be accompanied by an appropriate cover sheet (37 CFR 3.28, 3.31) (check if applicable). <input type="checkbox"/>				\$0.00	
TOTAL FEES ENCLOSED =					\$445.00
				Amount to be: refunded	\$
				charged	\$

a. <input checked="" type="checkbox"/> A check in the amount of \$445.00 to cover the above fees is enclosed. b. <input type="checkbox"/> Please charge my Deposit Account No. _____ in the amount of _____ to cover the above fees. A duplicate copy of this sheet is enclosed. c. <input checked="" type="checkbox"/> The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 04-1644 . A duplicate copy of this sheet is enclosed. d. <input type="checkbox"/> Fees are to be charged to a credit card. WARNING: Information on this form may become public. Credit card information should not be included on this form. Provide credit card information and authorization on PTO-2038.	<p style="text-align: center;">  SIGNATURE </p> <p> Paul M. Odell NAME </p> <p> 28,332 REGISTRATION NUMBER </p> <p> January 22, 2002 DATE </p>
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Rec'd PCT/PTO 13 MAY 2002

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant:	Klaus Bruchmann)	<u>PATENT APPLICATION</u>
)	Attorney Docket: BRU6144P0060US
Serial No.:	10/031,941)	
)	
International)	Group Art Unit:
Filing Date:	July 20, 2000)	Not Yet Designated
)	
For:	SWITCHING SYSTEM WITH A)	Confirmation No. 8744
	COMBINED SWITCHING AND)	
	BLOCKING DEVICE)	
	(As Amended By The Enclosed)	
	Preliminary Amendment))	
)	
Examiner:	Not Yet Designated)	

PRELIMINARY AMENDMENT

Box PCT
Commissioner For Patents
Washington, D.C. 20231

Sir:

Please enter this Preliminary Amendment before examining the application and calculating the filing fee.

The Preliminary Amendment refers to the English language translation enclosed herewith.

IN THE ABSTRACT:

Please replace the ABSTRACT on page 11 of the specification with the following re-written ABSTRACT which is supported by the originally filed specification and claims:

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--A B S T R A C T

A switching system comprises at least one fused switch unit (10) with a fuse link (20) which can be switched on and off, having a make switch and a break switch and a blocking apparatus, for keeping the circuit open. A combined switching and blocking apparatus (30) is provided, with a blocking element (32) having at least one blocking rod (33) for each fused switch unit (10) being mounted on an operating lever (31) of the switch. An interlocking element (35) having an opening (36) is provided for each fused switch unit (10) and can be switched to and fro in the fused switch unit (10) together with the associated fuse link (20). A blocking rod (33) can be inserted into the opening (36) in the interlocking element (35) only when the fuse link (20) is in its switched-on position. The operating lever (31) of the switch can be switched to close the circuit only when each blocking rod (33) can be inserted into the associated opening (36) in the interlocking element (35). A fuse link (20) cannot be moved to its switched-off position when the blocking rod (33) is inserted into the opening (36) in the interlocking element (35).--

IN THE SPECIFICATION:

On page 1, in lines 1 and 2 of the English language translation, please delete the title, and insert the following new title, new paragraph, and new heading:

--SWITCHING SYSTEM WITH A
COMBINED SWITCHING AND BLOCKING DEVICE

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This application is an application filed under 35 U.S.C. Sec. 371 as a national stage of international application PCT/EP00/06937, which was filed July 20, 2000.

TECHNICAL FIELD--.

On page 1, please replace the paragraph beginning at line 4 with the following rewritten two paragraphs and interposed heading:

--The invention relates to a switching system which has at least one fused switch unit with a fuse link which can be switched to and fro between a switched-on position and a switched-off position.

BACKGROUND OF THE INVENTION

Such a switching system furthermore has a switch for closing and interrupting the circuit of the electrical power system, as well as a switching and blocking apparatus which prevents the circuit from being closed by the switch.--

On page 1, after line 30, please insert the following new heading:

--SUMMARY OF THE INVENTION--.

On page 1, please replace the paragraph beginning at line 37 with the following:

--The object is achieved by a switching system according to the invention.--

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On page 4, after line 17, please insert the following new heading:

--BRIEF DESCRIPTION OF THE DRAWINGS--.

On page 4, after line 32, please insert the following new heading:

--DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT--.

On page 9, in line 1, please delete the heading "Patent Claims" and insert the following new heading: --WHAT IS CLAIMED IS:--.

IN THE CLAIMS:

Please amend claim 1 as follows:

1. (Amended) A switching system, having:

- at least one fused switch unit (10) with a fuse link (20) which can be switched to and fro between a switched-on position and a switched-off position,
- a switch for closing and interrupting the circuit of the switching system,
- a blocking apparatus, which can prevent the circuit from being closed by the switch,

wherein

- a combined switching and blocking apparatus (30) is provided, with a blocking element (32) having at least one blocking rod (33) for each fused switch unit (10) being mounted on an operating lever (31) of the switch for closing and interrupting the circuit,

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- an interlocking element (35) having an opening (36) is provided for each fused switch unit (10) and is arranged in the fused switch unit (20) such that it can be switched to and fro together with the associated fuse link (20), and in which
- a blocking rod (33) can be inserted into the opening (36) in the associated interlocking element (35) only when the associated fuse link (20) is in its switched-on position,
- the operating lever (31) of the switch can be switched to close the circuit only when each blocking rod (33) can be inserted into the associated opening (36) in the interlocking element (35), and
- a fuse link (20) cannot be moved to its switched-off position when the associated blocking rod (33) is inserted in the opening (36) in the associated interlocking element (35).

Please amend claim 4 as follows:

4. (Amended) The switching system as claimed in claim 1, wherein a fused switch unit (10) has a switching rocker for holding the fuse link (20) or the fuse plug (40), and the switching rocker can be switched to and fro between a switched-on position and a switched-off position.

Please amend claim 7 as follows:

7. (Amended) The switching system as claimed in claim 1, wherein the interlocking element (35) is in the form of a guide element.

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Please amend claim 8 as follows:

8. (Amended) The switching system as claimed in claim 1, wherein the interlocking element (35) has at least one latching element (37) which engages with a corresponding latching element (38, 39) on the fused switch unit (10) when the fuse link (20), the fuse plug (40) and/or the switching rocker are/is in the switched-off position and/or in the switched-on position.

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REMARKS

The amendments to the application have been made to remove multiple dependencies from some of the claims, to make claim 8 more clear, to set forth headings in the specification, to make the ABSTRACT more clear, and to conform with U.S. practice. The "translated" English language title has been amended to the English language title as set forth by WIPO in the PCT Publication WO 01/08180 A1 so as to minimize confusion.

Applicant believes that these amendments are fully supported by the international application and do not believe that these amendments constitute new matter.

Applicant herewith submits a copy of the English translation of the original international application along with this Preliminary Amendment.


Attached hereto is a marked-up version of the changes made to the specification and claims by the current amendment. The attached marked-up version is captioned **"VERSION WITH MARKINGS TO SHOW CHANGES MADE."**

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Entry of the amendments is respectfully requested.

Respectfully submitted,

WOOD, PHILLIPS, KATZ, CLARK & MORTIMER

By 
Paul M. Odell, Reg. No. 28,332

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May 13, 2001

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

IN THE ABSTRACT

The ABSTRACT on page 11 of the specification has been re-written as follows:

A B S T R A C T

A switching system comprises at least one fused switch unit (10) with a fuse link (20) which can be switched on and off, having a make switch and a break switch and a blocking apparatus, for keeping the circuit open. A combined switching and blocking apparatus (30) is provided, with a blocking element (32) having at least one blocking rod (33) for each fused switch unit (10) being mounted on an operating lever (31) of the switch. An interlocking element (35) having an opening (36) is provided for each fused switch unit [(20)] (10) and can be switched to and fro in the fused switch unit (10) together with the associated fuse link (20). A blocking rod (33) can be inserted into the opening (36) in the interlocking element (35) only when the fuse link (20) is in its switched-on position. The operating lever (31) of the switch can be switched to close the circuit only when each blocking rod (33) can be inserted into the associated opening (36) in the interlocking element (35). A fuse link [(10)] (20) cannot be moved to its switched-off position when the blocking rod (33) is inserted into the opening (36) in the interlocking element (35).

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IN THE SPECIFICATION

On page 1, in lines 1 and 2 of the English language translation, the title has been canceled and replaced with the following new title, new paragraph, and new heading as follows:

SWITCHING SYSTEM WITH A COMBINED SWITCHING AND BLOCKING DEVICE

This application is an application filed under 35 U.S.C. Sec. 371 as a national stage of international application PCT/EP00/06937, which was filed July 20, 2000.

TECHNICAL FIELD.

On page 1, the paragraph beginning at line 4 has been amended by changing it to two paragraphs with an interposed heading as follows:

The invention relates to a switching system which has at least one fused switch unit with a fuse link which can be switched to and fro between a switched-on position and a switched-off position.

BACKGROUND OF THE INVENTION

Such a switching system furthermore has a switch for closing and interrupting the circuit of the electrical power system, as well as a switching and blocking apparatus which prevents the circuit from being closed by the switch.

On page 1, after line 30, the following new heading has been added:

SUMMARY OF THE INVENTION.

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On page 1, the paragraph beginning on page 37 has been amended as follows:

The object is achieved by a switching system as claimed [in claim 1, and claims 2 to 8 relate to particularly advantageous embodiments of the switching system] according to the invention.

On page 4, after line 17, the following new heading has been added:

BRIEF DESCRIPTION OF THE DRAWINGS.

On page 4, after line 32, the following new heading has been added:

DETAILED DESCRIPTION OF THE PREFERRED EMBODIMENT.

On page 9, in line 1, the heading has been changed as follows:

[Patent Claims] WHAT IS CLAIMED IS:.

IN THE CLAIMS:

Claim 1 has been amended as follows:

1. (Amended) A switching system, having:
 - at least one fused switch unit (10) with a fuse link (20) which can be switched to and fro between a switched-on position and a switched-off position,
 - a switch for closing and interrupting the circuit of the switching system,

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- a blocking apparatus, which can prevent the circuit from being closed by the switch,

wherein

- a combined switching and blocking apparatus (30) is provided, with a blocking element (32) having at least one blocking rod (33) for each fused switch unit (10) being mounted on an operating lever (31) of the switch for closing and interrupting the circuit,

- an interlocking element (35) having an opening (36) is provided for each fused switch unit (10) and is arranged in the fused switch unit (20) such that it can be switched to and fro together with the associated fuse link (20), and in which

- a blocking rod (33) can be inserted into the opening (36) in the associated interlocking element (35) only when the associated fuse link (20) is in its switched-on position,

- the operating lever (31) of the switch can be switched to close the circuit only when each blocking rod (33) can be inserted into the associated opening (36) in the interlocking element (35), and

- a fuse link [(10)] (20) cannot be moved to its switched-off position when the associated blocking rod (33) is inserted in the opening (36) in the associated interlocking element (35).

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Claim 4 has been amended as follows:

4. (Amended) The switching system as claimed [in one] of claim[s] 1 [or 2], wherein a fused switch unit (10) has a switching rocker for holding the fuse link (20) or the fuse plug (40), and the switching rocker can be switched to and fro between a switched-on position and a switched-off position.

Claim 7 has been amended as follows:

7. (Amended) The switching system as claimed in claim 1 [one of the preceding claims], wherein the interlocking element (35) is in the form of a guide element.

Claim 8 has been amended as follows:

8. (Amended) The switching system as claimed in claim 1 [one of the preceding claims], wherein the interlocking element (35) has at least one latching element (37) which engages with a corresponding latching element (38, 39) on the fused switch unit (10) when the fuse link (20), the fuse plug (40) and/or the switching rocker are/is in the switched-off position and/or in the switched-on position.

Switching system with a combined switching and blocking
 apparatus

5 The invention relates to a switching system which has
 at least one fused switch unit with a fuse link which
 can be switched to and fro between a switched-on
 position and a switched-off position. Such a switching
 system furthermore has a switch for closing and
 interrupting the circuit of the electrical power
 10 system, as well as a switching and blocking apparatus
 which prevents the circuit from being closed by the
 switch.

15 The switch for closing and interrupting the circuit of
 the switching system is intended to make it possible to
 make contact with all the fuse links in the switching
 system without any current or voltage being applied,
 before the circuit of the overall system is closed.
 This prevents switching arcs from forming on the
 20 sensitive contacts of the fuse links, and increases the
 life of the fuse links.

A blocking apparatus is intended to prevent the circuit
 from being closed via the switch even though the fuse
 25 links are not all in their switched-on position, with
 the intention of preventing incorrect operations of the
 switching system, which can lead to the switching arcs
 mentioned above and to damage, in particular to the
 fuse link.

30 One object of the invention is to provide a switching
 system which precludes incorrect operation of the
 switching system in a manner which is particularly
 simple and cost-effective, while at the same time being
 35 very reliable.

The object is achieved by a switching system as claimed
 in claim 1, and claims 2 to 8 relate to particularly

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advantageous embodiments of the switching system according to the invention.

According to the invention, a combined switching and
 5 blocking apparatus is provided in the switching system, with a blocking element having at least one blocking rod for each fused switch unit being mounted on an operating lever of the switch for closing and interrupting the circuit. Furthermore, an interlocking
 10 element having an opening is provided in each fused switch unit and is arranged in the fused switch unit such that it can always be switched to and fro together with the fuse link. Each blocking rod can be inserted into the opening in the associated interlocking element
 15 only when the associated fuse link is in its switched-on position; and the operating lever of the switch can be switched to close the circuit only when each of the blocking rods can be inserted into the opening in its associated interlocking element. A fuse link cannot be
 20 moved to the switched-off position when the associated blocking rod is inserted in the opening in the associated interlocking element. This is the case for all the fuse links whenever the operating lever of the switch is switched to close the circuit.

25 The refinement according to the invention of the combined switching and blocking apparatus automatically ensures that the circuit of the switching system cannot be closed unless all the fuse links in the fused switch
 30 units are in their switched-on position. At the same time, this ensures that, once the circuit has been closed by switching the operating lever of the switch, and hence of the combined switching and blocking apparatus, none of the fuse links can be switched from
 35 its switched-on position to the switched-off position.

Incorrect operations are thus one hundred percent precluded, with operation of the system being extremely

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simple by virtue of there being only one operating lever.

5 The switching system according to the invention may comprise just one fused switch unit. However, it preferably comprises a number of series-connected fused switch units.

10 The switching and blocking apparatus according to the invention is particularly applicable to switching systems having a number of fused switch units for a three-phase circuit. The fused switch units can in this case be mounted, in particular, on busbars.

15 The individual fused switch units may have different structural designs. For example, in one embodiment, the fuse link can be switched to and fro directly between the switched-on position and the switched-off position in the fused switch unit. In other embodiments, a fuse
20 plug is provided for holding the fuse link, in which the fuse plug can either be switched to and fro directly between a switched-on position and a switched-off position or can be inserted into a switching rocker of a fused switch unit, which is in turn designed such
25 that it can be switched to and fro.

The interlocking element can be mounted directly on the fuse link, but is preferably mounted on the fuse plug or on a switching rocker, so that standardized fuse
30 links can be used without the interlocking element having to be manually released from the old fuse link and having to be mounted on the new one, when replacing the fuse link, or, in some circumstances, having to adopt complex measures to ensure that the fuse link is
35 automatically connected to the interlocking element on replacement.

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If there is a switching rocker, then the interlocking element is preferably integral with the switching rocker, in order to achieve a simple system design.

- 5 The interlocking element is preferably in the form of a guide element, which defines and monitors the switching movement of the fuse link and/or of the fuse plug or of the switching rocker, in order to ensure a uniform and exact switching process.

10

- The interlocking element preferably has at least one latching apparatus, which engages with corresponding latching elements in the fused switch unit, when the fuse link is in the switched-off position and/or the
15 switched-on position. The limit positions of the fuse link and/or of the fuse plug or of the switching rocker are thus fixed as defined, latched limit positions.

- These and further advantages of the invention are
20 evident from the attached schematic drawings, in which:

- Figure 1 shows a cross-sectional view through an area element of one embodiment of the switching system according to the invention, with a
25 fuse link in the switched-off position;

- Figure 2 shows the embodiment of the switching system illustrated in Figure 1, with the fuse link in the switched-on position; and

30

- Figure 3 shows a cross-sectional view along the line A-A in Figure 1.

- Figure 1 shows an area element of one embodiment of the
35 switching system according to the invention, which comprises a number of fused switch units 10. However, for simplicity, only one area element of a single fused switch unit is shown. The other fused switch units are constructed analogously.

The fused switch unit 10 has a fuse plug 40, into which a fuse link 20 is inserted. A lower contact 50 makes contact with the fuse link 20 irrespective of the position of the fuse plug 40, while an upper contact 60 does not make contact with the fuse link 20 when the fuse plug 40 is in the switched-off position shown in Figure 1.

10 The lower contact 50 of the fused switch unit 10 is preloaded by means of a spring 51, thus making a sliding contact 52, in the form of a fork, with the fuse link 20 at all times. The upper contact 60 makes contact with a mating contact on the fuse link 20 only
15 when the fuse plug 40 is pivoted (see Figure 2).

An interlocking element 35, which is in the form of a segment of a circle, is fitted to the fuse plug 40, is at the same time in the form of a guide and supporting
20 element, and is guided in a guide rail (not shown) on the housing 11 of the fused switch unit 10.

The fuse plug 40 can be inserted into the fused switch unit 10 and can be removed from it, while the
25 interlocking element 35 is a fixed component of the fused switch unit 10. The connection between the two elements will be explained in the following text in conjunction with Figure 3.

30 The interlocking element 35 has an opening 36 into which a blocking rod 33 of the blocking element 32 of the switching and blocking apparatus 30 can be inserted when the fuse plug is in its switched-on position. However, when the fuse link 20 and the fuse plug 40 are
35 in the switched-off position shown in Figure 1, the blocking rod 33 of the switching and blocking apparatus 30 abuts against an edge area of the interlocking element 35, so that the operating lever 31 of the switching and blocking apparatus 30 cannot be switched.

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has a latched limit position, irrespective of the position of the operating lever 31 and of the blocking of the fuse plug 40 by the blocking rod 33 in the switched-on position.

5

Since the blocking element 32 together with in each case one blocking rod 33 for each fused switch unit 10 is a rigid element, the operating lever cannot be moved to the position shown in Figure 2 if even only one of the fuse plugs 40 is not in its switched-on position.

10

Figure 3 shows a cross section through the fuse plug 40 and the interlocking element 35 along the line A-A in Figure 1. The fuse plug 40 has an attachment element 41 in the form of a dovetail, which engages in a corresponding mating element 42 on the interlocking element 35, thus producing a positively locking connection, with a friction fit. The fuse plug 40 can thus easily be inserted from above into the fused switch unit 10, with a reliable connection between the fuse plug 40 and the interlocking element 35 automatically being ensured via the attachment element 41 and the mating element 42.

15

20

It shall be mentioned once again that the illustrated drawings are only schematic, so that no restrictions with regard to the dimensions and size ratios of the illustrated elements can be derived from them. Other geometric embodiments of the illustrated elements may be used without departing from the subject matter of the present invention.

25

30

List of reference symbols

- 10 Fused switch unit
- 11 Housing
- 20 Fuse link
- 30 Switching and blocking apparatus
- 31 Operating lever (switching and blocking apparatus)
- 32 Blocking element
- 33 Blocking rod
- 35 Interlocking element
- 36 Opening (interlocking element)
- 37 Latching element (interlocking element)
- 38,39 Latching elements (fused switch unit)
- 40 Fuse plug
- 41 Attachment element (fuse plug)
- 42 Mating element (interlocking element)
- 50 Lower contact (fused switch unit)
- 51 Spring (lower contact)
- 52 Upper contact (fused switch unit)

Patent Claims

1. A switching system, having:
 - at least one fused switch unit (10) with a fuse link (20) which can be switched to and fro between a switched-on position and a switched-off position,
 - a switch for closing and interrupting the circuit of the switching system,
 - a blocking apparatus, which can prevent the circuit from being closed by the switch,
 wherein
 - a combined switching and blocking apparatus (30) is provided, with a blocking element (32) having at least one blocking rod (33) for each fused switch unit (10) being mounted on an operating lever (31) of the switch for closing and interrupting the circuit,
 - an interlocking element (35) having an opening (36) is provided for each fused switch unit (10) and is arranged in the fused switch unit (20) such that it can be switched to and fro together with the associated fuse link (20), and in which
 - a blocking rod (33) can be inserted into the opening (36) in the associated interlocking element (35) only when the associated fuse link (20) is in its switched-on position,
 - the operating lever (31) of the switch can be switched to close the circuit only when each blocking rod (33) can be inserted into the associated opening (36) in the interlocking element (35), and
 - a fuse link (10) cannot be moved to its switched-off position when the associated blocking rod (33) is inserted in the opening (36) in the associated interlocking element (35).

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2. The switching system as claimed in claim 1,
wherein a fused switch unit (10) has a fuse plug
(40) for holding the fuse link (20), and the fuse
plug (40) can be switched to and fro between a
switched-on position and a switched-off position.
3. The switching system as claimed in claim 2,
wherein the interlocking element (35) is mounted
on the fuse plug (40).
4. The switching system as claimed in one of claims 1
or 2, wherein a fused switch unit (10) has a
switching rocker for holding the fuse link (20) or
the fuse plug (40), and the switching rocker can
be switched to and fro between a switched-on
position and a switched-off position.
5. The switching system as claimed in claim 4,
wherein the interlocking element is mounted on the
switching rocker.
6. The switching system as claimed in claim 4,
wherein the interlocking element is integral with
the switching rocker.
7. The switching system as claimed in one of the
preceding claims, wherein the interlocking element
(35) is in the form of a guide element.
8. The switching system as claimed in one of the
preceding claims, wherein the interlocking element
(35) has at least one latching element (37) which
engages with a corresponding latching element (38,
39) on the fused switch unit (10) when the fuse
link (20), the fuse plug (40) and/or the switching
rocker are/is in the switched-off position and/or
in the switched-on position.

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Abstract

A switching system comprises at least one fused switch unit (10) with a fuse link (20) which can be switched on and off, having a make switch and a break switch and a blocking apparatus, for keeping the circuit open. A combined switching and blocking apparatus (30) is provided, with a blocking element (32) having at least one blocking rod (33) for each fused switch unit (10) being mounted on an operating lever (31) of the switch. An interlocking element (35) having an opening (36) is provided for each fused switch unit (20) and can be switched to and fro in the fused switch unit (10) together with the associated fuse link (20). A blocking rod (33) can be inserted into the opening (36) in the interlocking element (35) only when the fuse link (20) is in its switched-on position. The operating lever (31) of the switch can be switched to close the circuit only when each blocking rod (33) can be inserted into the associated opening (36) in the interlocking element (35). A fuse link (10) cannot be moved to its switched-off position when the blocking rod (33) is inserted into the opening (36) in the interlocking element (35).

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#5

DECLARATION AND POWER OF ATTORNEY FOR UTILITY OR DESIGN PATENT APPLICATION (37 CFR 1.63)		Attorney Docket No.: BRIJ6144P0060118
		First Named Inventor: Klaus Bruchmann
		COMPLETE IF KNOWN
<input checked="" type="checkbox"/> Declaration Submitted	<input type="checkbox"/> Declaration Submitted After Initial	Application Number:
With Initial Filing	Filing (surcharge (37 CFR 1.16(e)) required)	Filing Date:
		Group Art Unit:
		Examiner Name:

As a below-named inventor, I hereby declare that:

My residence, post office address, and citizenship are as stated below next to my name.

I believe I am the original, first, and sole inventor (if only one name is listed) or an original, first and joint inventor (if plural names are listed) of the subject matter which is claimed and for which a patent is sought on the invention entitled: **SWITCHING SYSTEM WITH A COMBINED SWITCHING AND BLOCKING DEVICE**, the specification of which:

- ☐ is attached hereto; or
- ☒ was filed on July 20, 2000 as PCT International Application Serial No. PCT/EP00/06937 and was amended on _____ (if applicable).

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose all information which is material to patentability as defined in 37 CFR. 1.56, including for continuation-in-part applications, material information which became available between the filing date of the prior application and the national or PCT international filing date of the continuation-in-part application.

I hereby claim foreign priority benefits under 35 U.S.C. 119(a)-(d) or 365(b) of any foreign application(s) for patent or inventor's certificate, or 365(a) of any PCT international application which designated at least one country other than the United States of America, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate, or any PCT international application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application Numbers	Country	Foreign Filing Date (MM/DD/YYYY)	Priority Not Claimed	Certified Copy Attached?	
				YES	NO
199 34 539.2	Germany	07/22/99	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
299 12 859.8	Germany	07/22/99	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>
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- ☐ Additional foreign application numbers are listed on a supplemental priority data sheet attached hereto.

I hereby claim the benefit of any United States application(s) listed below.

1111701941 0543013
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#3

PTO/SB/122 (10-01)

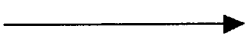
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CHANGE OF CORRESPONDENCE ADDRESS <i>Application</i> Address to: Assistant Commissioner for Patents Washington, D.C. 20231	Application Number	10/031,941
	Filing Date	July 20, 2000
	First Named Inventor	Klaus Bruchmann
	Art Unit	8744
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Typed or Printed Name Paul M. Odell (Reg. No. 28,332)

Signature 

Date May 13, 2002

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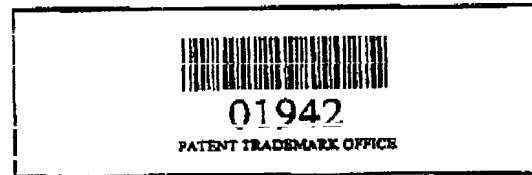
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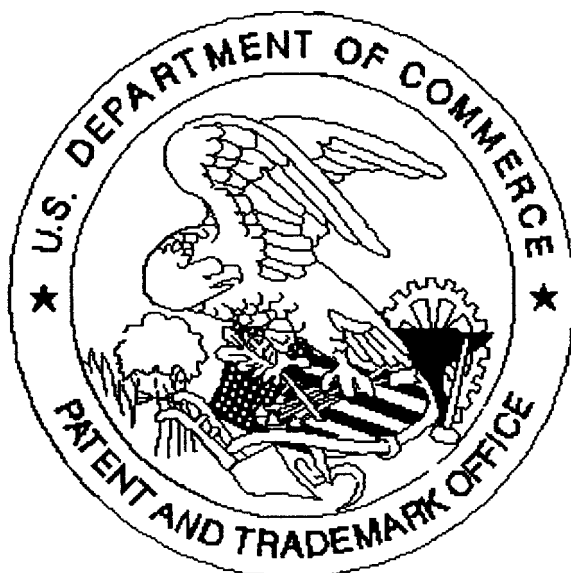


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1-00

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